

E.O. Lawrence Award to Osbourn

Gordon Osbourn, supervisor of Electronic and Transport Phenomena in Solids Division 1132, has been picked to receive the DOE's top award for scientific achievement, the Ernest Orlando Lawrence Memorial Award for outstanding contribution in the field of atomic energy. Secretary of Energy John Herrington will present Gordon with a citation, medal, and \$10,000 prize at a special ceremony in Washington on Nov. 25.

The last Sandian to receive the Lawrence Award was Executive Vice-President Tom Cook, in 1971 (see related story). Other 1985 recipients are Anthony Malinauskas of Oak Ridge, William Miller of UC Berkeley, David Nygren of LBL, Betsy Sutherland of Brookhaven, and Thomas Weaver of LLNL.

Gordon was named one of the recipients of the award two weeks ago. He was cited for working out the theory of strained-layer superlattices, generally known simply as "SLS materials." This work began at Sandia in 1981 when Gordon carried out the first theoretical study of the electronic properties of SLS structures. His findings led him to propose SLSs as a useful new class of semiconductor materials with tailorable electronic properties.

"Osbourn's award recognizes the innovative ideas he injected into the preparation of deliberately tailored semiconductor materials," says Bill Brinkman, vice-president of Research 1000. "His ideas on strained-layer superlattices have enormously broadened research opportunities in that field."

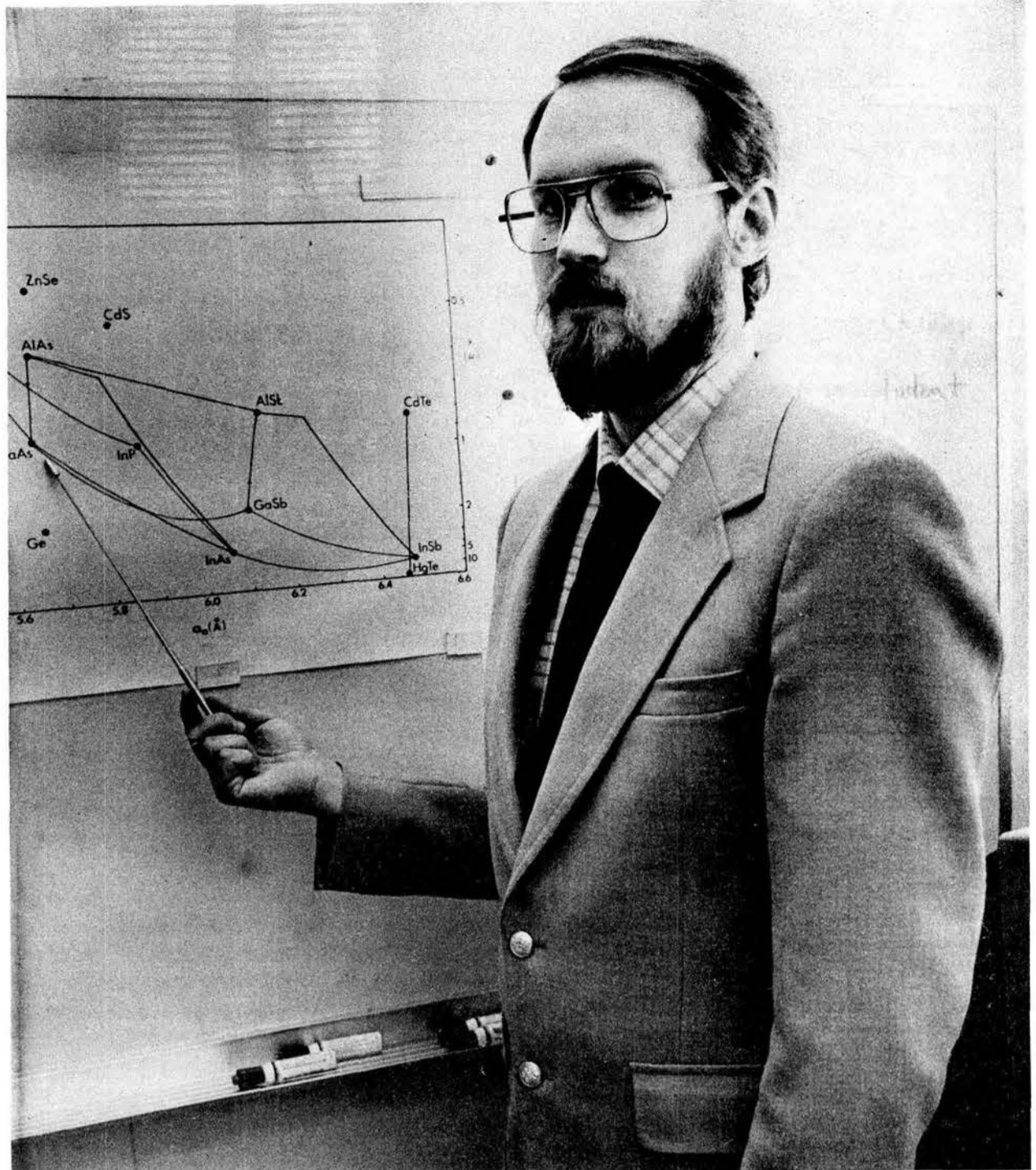
SLSs are high quality semiconductors that are made of alternating layers of different crystalline materials. Normally these structures contain defects because the unit cells in one layer cannot contract or expand sufficiently to match up neatly with the different-sized unit cells in the neighboring layer. However, by keeping the layers sufficiently thin, they can be grown as perfect, but "strained," crystals. Gordon was the first to recognize that these SLS crystals can be of sufficient quality for scientific and device applications and that their properties can be "tailor made" for such applications.

A host of new scientifically tailored materials can be manufactured as SLS structures are created atomic layer by atomic layer, each layer so thin that it would take 40,000 of them to equal the thickness of a sheet of aluminum foil.

Semiconductor devices made with SLS material are as good as — or even better than — those made from bulk or lattice-matched materials.

"I feel very honored and very excited," said Gordon when he was informed of the award. "At the same time, as with any recognition of SLS work, I'm always thinking about contributions of all my co-workers here at Sandia."

The first experimental verification of Gordon's theoretical predictions was carried out by Bob Biefeld (1154) and Paul Gourley (1132). Since that time, more than a dozen other Sandia scientists have become involved.



E.O. LAWRENCE AWARD winner Gordon Osbourn (1132) was one of six scientists to receive the award this year. Gordon was cited for his work on strained-layer superlattices (SLS) theory. His work on SLSs, a useful new class of semiconductor materials with tailorable electronic properties, began in 1981.

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"The SLS work is a team effort. My contribution was the theoretical aspect, which got the ball rolling," adds Gordon.

"There are so many aspects of SLS work. It takes us all the way from fundamental material science to actual devices."

"The use of SLS technology in material science is already widespread. The most recent issue of *Applied Physics Letters* contains four papers on strained-layer topics, only one of which is from Sandia.

"Device development is always a little bit farther down the line. But I think it's just a matter of time before many other laboratories exploit the device capabilities of SLS, as we are doing now. I think that AT&T Bell Laboratories and the Japanese will be frontrunners in SLS device research.

"The synthesis and the electrical, optical, and structural characterization of the SLS materials need to continue to be emphasized in the future. Such research uncovers interesting aspects of materials that then can be used later for device purposes.

"One of the exciting things about SLS work is that it combines some very interesting materials science research with some novel and highly important device applications. That sort of balance and mix is very desirable for our work in 1100. It's exciting and it's fun."

Sandia has produced several "proof of principle" devices from SLS materials, including transistors, a light detector, and a laser. Patent disclosures have been filed on

(Continued on Page Three)

Antojitos

We Don't Always Speak Acronymish I'm lousy at remembering both names and faces (at least I'm consistent), but I'm pretty fair at remembering lines I've listened to (sometimes out of my own mouth) and liked. Herewith, a recent selection, some with attribution (where I can remember the name):

Hope shrinks eternal. (Jim Schirber, 1150)

Never say "make" if you can say "fabricate." (Sandia engineers)

What I hate most about writing is the paperwork. (Anonymous)

Being first isn't always best. It may mean you'll do things wrong longer than anyone else. (Bob Weaver, ret.)

I gave up being an atheist -- no holidays. (Bob Lucas, ret.)

The past looks so good because the future always looks worse. (Stan Love, 3522)

The reason computers can do more work than people is that computers never have to stop to answer the phone. (Computerist friend in IA)

One language all programmers know is PROFANITY. (Dan Fullerton, T-VI)

Q. What do you call a personal computer with excellent color and graphics? A. MicroAngelo. (Anonymous)

And I've come up with a couple myself:
I learn by trial and error. Unfortunately, they have a precise 1:1 correlation.

Basic Applied Engineering: When bent into a triangular shape with a hook on top, the wires used to unlock your car door when you've locked your keys inside make ideal devices on which to hang clothes.

Hawkinson's Second Law of Marital Relations: If you can't hear your spouse, you're going deaf. If your spouse can't hear you, you're not enunciating.

* * *

Are You Prepared for This? A bright new traffic sign just southwest of KAFB's gate off Eubank warns motorists that a crossroads lies ahead so they should "PREPAIR TO STOP DURING RUSH HOUR." Apparently the sign-makers are remembering the sign Noah doubtless used to get the animals to pair up, male and female, before boarding the ark. ●BH

* * *

Quel che pare burla, ben sovent è vero. (Italian: What seems a joke is very often true, or "Many a true word is spoken in jest.")

Materials Experts Meet at Labs

Two symposia — one on ceramics, the other on polymers — were hosted by Sandia earlier this month. The meetings featured invited papers by materials scientists at Sandia and other DOE labs, as well as representatives from industry and universities. Technical sessions were held at the Technology Transfer Center.

Bob Eagan (1840) was general chairman for the session on developments in ceramic science; Glen Kepler (1810) chaired the meeting on polymer science. Nineteen Sandians from the 1800, 1100, and 2500 directorates presented papers at the two meetings.

The symposia were held in conjunction with the annual Materials Directors' Meeting, chaired this year by Dick Schwoebel, director of Materials and Process Sciences 1800. Twelve materials science directors from DOE facilities and universities attended the meeting.

Bill Brinkman (1000) spoke on "Developing a National Materials Policy" at a joint dinner meeting of attendees at the symposia and Materials Directors' Meeting.

"The materials science symposia were the first to be held at the same time the materials directors met," says Dick. "We felt the meetings provided an excellent opportunity for interaction among DOE scientists and representatives of universities and industry."

"As Sandia continues to build national recognition for its research in materials science, we expect to host more meetings of this type in the future, with continuing emphasis on technology transfer," he says.



Here are some current volunteer opportunities for employees, retirees, and family members. If you would like more information, call Karen Shane (4-3268).

ALL FAITHS RECEIVING HOME, a facility that provides temporary emergency care for neglected, abandoned, and abused children, needs help to input accounting data on an IBM PC (dBase III and Lotus 1-2-3).

AMERICAN DIABETES ASSOCIATION needs volunteers to make calls from a phone bank in the Northeast Heights (names, phone numbers, and script are provided) during its fundraising telethon on the evenings of Nov. 10-14.

SENIOR CITIZENS AID FOUNDATION is a non-profit organization dedicated to easing the burdens of the frail and needy elderly. In conjunction with the mayor's proclamation of Nov. 1 and 2 as Senior Citizens Aid Days, volunteers are needed to solicit donations at shopping centers and office buildings (including Kirtland military).

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Indian Calendar Has 'Leap Month'



Archaeologist [Alexander Marshack (Harvard U.)], analyzing a 'calendar stick' made by the Winnebago Indians, has discovered what he believes is the first evidence that the North American Indians had developed advanced full-year calendars based on systematic astronomical observation. [Marshack] found that carved markings on the wooden calendar stick were notations of a precise lunar year and solar year, but made without numbers because the Indians did not have a number system. The lunar year, divided into 12 months, was remarkably close to the astronomically correct 354 days. Since the solar year, which the Winnebagos also plotted, is slightly more than 11 days longer, the stick contained markings for a leap-year adjustment. Every three years, according to notations at the bottom of the stick, the Winnebago calendar provided for an extra month of 23 days to match the lunar year with the solar year, which was of more practical importance to the hunters and farmers. 'That's very sophisticated stuff for a people who didn't have writing or high arithmetic,' said Marshack. John Noble Wilford, *New York Times*

The Science of Chaos



Mitchell Feigenbaum, a 39-year-old physicist at Cornell, has become a midwife for a new scientific discipline that is exploring turbulence and disorder of a kind that a decade ago seemed impenetrable. It is built on the discovery that of all the possible paths to disorder, nature favors just a few. It has its own technique of using computers and its own special language. Its practitioners — physicists, mathematicians, chemists, biologists — number no more than a few hundred scientists in the US and Europe and a few dozen in the Soviet Union and Japan. At the moment, this new discipline doesn't even have a name, just a nickname: chaos. James Gleick, *New York Times Magazine*

Osborn Wins Lawrence

these and other designs, including a solar cell and an infrared detector. "Our work on p-type SLSs and high-speed, p-type SLS field effect transistors, using what we call the light hole effect, is very important," Gordon says.

"Probably one of the most exciting potential applications is the infrared detector. If it performs to our expectations, it should prove to be one of the most significant early applications of SLS."

Work continues to progress at Sandia in all phases of SLS research and development, including more device fabrication.

"Osborn has not only introduced the idea of tailoring electronic properties of materials using the strained layer concept, but he has gone on to predict exciting new devices made possible using this concept," said this month's announcement from DOE. "In so doing, he has provided scientific leadership to a new and potentially important developing technology."

A former resident of Missouri (his father has worked for Bendix Kansas City as a chemist for 17 years), Gordon graduated from the University of Missouri in 1974 and received his PhD in solid state physics from the California Institute of Technology in 1979. He joined Sandia in 1979 and in 1983 was appointed to his current position. He is a member of the American Physical Society.

Sandia's First Lawrence Winner

Executive Vice-President Tom Cook was the first Sandian to win an E. O. Lawrence Memorial Award.

The award was presented in 1971 "for his significant contributions to the study of nuclear weapons effects, for his original work in the translation of this knowledge into advanced technology for peaceful and military uses for atomic energy, and for his outstanding contributions to the nation through his service as an advisor to the Atomic Energy Commission [DOE's predecessor] and the Department of Defense on the effects of nuclear detonations."

During that award presentation, AEC Commissioner James Ramey noted that Tom had played a leading role in the pioneering work being done at Sandia on nuclear explosions in the upper atmosphere and space. Ramey also noted that Tom was "one of the first scientists to recognize that the output phenomena associated with high altitude bursts would be radically different from those of surface bursts."



BACK IN 1971, Executive VP Tom Cook (then Livermore VP) won Sandia's first E.O. Lawrence Award. Here he's congratulated by AEC Commissioner James Ramey in Washington.

Ramey pointed out that Tom's and Carter Broyles' (7100) 1954 publication, "Curves of Atomic Weapons Effects . . ." — known informally as "The Cook Book" — was "for many years the principal reference in this country" for high altitude weapons effects on hardware and communications.

Computerized Sneakers



Puma USA said . . . it has managed to combine two of the nation's fads — running and computers — in one shoe. Beginning in spring 1986, Puma will market a running shoe with a built-in electronic device that can be plugged into your handy home computer and can tell you how far you ran, how fast and how many calories you used, and then can tell you how faithfully you have kept to your running program . . . Weighing

only 30 grams, this self-contained data-recording device is tucked into a wedge-like unit in the heel of the left shoe. Information can be accessed immediately or stored indefinitely as long as the shoe is not turned off. After a run, the shoe is 'plugged in' to a computer with an 18-inch cable, and using individualized data preprogrammed on a floppy disk, the exact distance run and the amount of calories used are calculated."

Dody Tsiantar, Washington Post

Fun & Games

Volleyball — The Sandia #1 volleyball team beat the AFWL #1 team in the finals of the recent Thunderbird Volleyball Tournament sponsored by KAFB, and won the tournament with a record of five wins, no defeats. Members of the team are Bob Eyers (6442), Dot Draper, Bruce Draper (2149), Kay Schoenefeld (6425), Randy Sakamoto (7481), Donna Chavez (CERF), Gene Casados (CERF), and Barry Marder (1231).

Golf — Winners of the recent SWGA Tournament at Socorro were: Flight A, Minnie Shurick and Ree Gerchow (122), first and second low net, with low putts to Mary Gonzalez (7241) and longest drive to Ree Gerchow; Flight B, Barbara Hilton (DOE/FMD) and Vicki Black (2561), first and second low net, with low putts to Nellie Gerchow and longest drive to Tina Ward (DOE/CIRD).

Horseback Riding — A \$1000 Western or English saddle will be awarded to the top fund raiser in the 10th annual "Horse-A-Thon" sponsored by the American Lung Association of NM. The 20-mile ride on Nov. 2 along the Rio Grande in Albuquerque will feature three competition categories: adult, ages 14-17, and age 13 and under. Sponsor forms available from the Association at 216 Truman NE, or call 265-0732.

Running — A fun run to benefit the

Animal Humane Association of NM will be held Sunday, Nov. 3; your pooch is invited to participate too! The five mile run (or two mile walk for the not-so-ambitious) will begin at the corner of Los Angeles and Louisiana NE at 10 a.m. Pre-registration at Gil's RunnerShoe World, Lomas and Carlisle NE, or AHA, 615 Virginia SE — by mail or in person. Fee is \$6 in advance or \$7 on race day (race day registration from 9-10 a.m.).

Bicycling — A stock of up-to-date (October 1985) official bikeway maps for Albuquerque/Bernalillo County is now available at the LAB NEWS office. Also on hand: slightly older booklets ("Atlas of Albuquerque Bikeways") containing larger maps showing bikeways in various sections of town (price: 25¢). Drop by the office in Bldg. 814 if you'd like a copy of either one.

Cross-Country Skiing — The New Mexico Ski Touring Club is thinking snow and gearing up for the 1985-86 season. Meetings are held the second Thursday of each month at St. John's United Methodist Church, 2633 California NE, at 7:30 p.m.; prospective members are welcome. Alan Burns (1128) is president of the club this year. Sam Beard (1633) is leading a trail maintenance crew to the Jemez Mountains on November 2, and can use volunteers for the project. If you're interested in helping, meet the group at Sunwest Bank, Academy and San Mateo NE at 8 a.m. that day.

Triathlon — The Triathlon of Albuquerque, the Jay Benson Memorial, is usually held in early November, but not this year. The problem, reports Stan Ford of the C-Club, is that the base's Olympic pool is undergoing a major renovation that won't be completed for a few months. Stan still plans on a Triathlon to continue the event originated here at Sandia back in '77. "We'll stage the Triathlon next spring, after the pool reopens," he says.

Bowling — Your \$2 membership fee in the SANDOE Bowling Association lets you participate in all the association's fun tournaments (No Tap, Scotch Doubles, No Tap/Scotch Doubles, or Best Ball), and makes you eligible for the Bowler-of-the-Month award (two men and two women — both scratch and handicap series — bowled in any sanctioned league). SANDOE membership is open to all Sandia and DOE employees and their spouses. Send your fee money to Dora Gunckel (6410).

Congratulations

Billy (2343) and Janet Brock, a son, Charles James, Oct. 5.

Joy (6241) and Dennis Arnold, a daughter, Denise Renee, Oct. 3.

Mark (5238) and Sher Heying, a son, Ryan Michael, Oct. 16.

SITAN + Color Map Displays = New Navigation System

If you're willing to spend some \$1400, you can install in your car a dashboard TV set that displays a color map of the area you're driving in — downtown San Francisco, say. The system uses data from the odometer, a compass, and the map to move a white blip, or cursor, on the screen and show you whether you're on Grant or Kearny.

But you'll have to input a starting location manually — and stay on only the streets (no shortcuts through parking lots).

Since 1982 a Sandia team has merged a much more sophisticated version of this color map capability with a unique terrain-aided navigation system. The combination allows operators of military land vehicles and pilots of low-flying attack planes and helicopters to continuously fix their location by simply watching a cockpit TV screen that displays a highly accurate moving color map.

The system combines SITAN (Sandia Inertial Terrain-Aided Navigation), initially developed about 10 years ago to guide a weapon to its target, with computer-generated moving color maps that are somewhat like the TV map in a private automobile.

A prototype of the navigation/color map system has been successfully field tested in an experimental multipurpose Army vehicle. The first field tests of the entire system in a military jet are planned later this year.

The map on the dashboard or cockpit TV screen can show such terrain details as bridges, roads, forests, communication lines, shadows cast by the sun, and elevation. A cursor on the map represents the vehicle or aircraft.

"The military recognizes that moving color maps can provide a real advantage in accurate navigation," says Drayton Boozer, supervisor of Advanced Systems Development Division II 5343.

"Our computer-controlled navigation system, SITAN, complements the recently developed color map capabilities. When the two are combined, the result is an electronic replacement for, or at least a powerful addition to, traditional paper maps used by ground troops and military pilots," says Drayton.

"Such a system could improve the effectiveness of tank operators and pilots of low-flying attack aircraft, for example, while enhancing their safety by showing them, for example, obstacles to avoid."

Key to the system's ability to continuously locate vehicles on a computer-generated color map is the combined use of a conventional navigation system and SITAN. The errors in conventional navigation systems tend to increase with either time or distance traveled: a typical aircraft inertial navigation system, for example, drifts about one nautical mile per hour, while a conventional land system develops an error of about two percent of the distance traveled.

In low-flying aircraft, SITAN uses computer algorithms (complex mathematical calculations designed to solve a particular problem) that compare radar-acquired topographical information from the route traversed (elevation derived from altimeter readings less the radar range down to the ground) with pre-input map data of a



ED NAVA (5343) makes final adjustments on a terrain-aided navigation system in an experimental multi-purpose Army vehicle before a field test. The unique system uses computer-generated color maps, displayed on a dashboard screen, as a means of giving operators a continuous fix on vehicle location. A similar system will be tested in a military jet later this year.

particular area (similar to the topo maps backpackers use, but digitized) to continuously correct errors in the aircraft's conventional navigation system (typically, an inertial navigation system in fighters and a doppler navigation system in helicopters). With that information, the vehicle can be guided along a desired course.

In an all-terrain land vehicle, SITAN compares the vehicle's elevation (determined by a barometric altimeter) with the elevation stored in the system's computer data base (the map of the area) to estimate the vehicle's position. The system's computer continuously produces an adjusted estimate of vehicle position by comparing the difference between the two elevation readings.

"Digital terrain elevation maps today are much more accurate than just a few years ago," notes Drayton. "The new maps mean that we can build a highly accurate, most useful positioning system."

It's the addition of SITAN, with its off-road capability, that accounts for the primary advantage of the new navigation system over the color road maps being built into private automobiles.

"The less complex systems in cars will require manual error correction," says Ed Nava (5343). "Our system, however, can have a starting position within an uncertainty region of about 2.5 square miles and, as the vehicle travels, the system will automatically estimate the true position and move the vehicle cursor on the map to

correspond to this position," says Ed, who led the Sandia project team that built and tested the system in an Army vehicle.

That field test, conducted earlier this year at a 50-square-mile site near Edgewood, involved driving the vehicle along a rectangular 30-mile dirt course and comparing computer-indicated vehicle locations with surveyed landmarks. Vehicle speeds during the one-hour tests typically were between 10 and 40 mph. The tests showed that the maximum error of the navigator was only 150 feet on either side of the actual vehicle path.

A demonstration of the SITAN/color map navigation system in a military jet is tentatively scheduled for later this year at Edwards AFB, Calif. SITAN will operate in a Harris Corp. Digital Map Generator installed in an advanced F-16 test plane. The moving color map will be displayed on a 9 x 9-inch color cockpit monitor.

The next task for the Sandia team will be to determine the feasibility of easily compressing large numbers of maps in a computer, thus reducing the computer memory required to store a map. "If such a navigation system is to ever be successfully incorporated into a wide range of military land vehicles or aircraft, there must be a detailed catalog of digitized maps that can be inserted into an onboard computer on short notice," Ed explains.

Development of the system has been partly supported by the U.S. Army and the U.S. Air Force.



SCIENCE NEWS Senior Editor Dietrick Thomsen (left) interviews Craig Olson (1241, right) about the Ionization Front Accelerator as Dietrick's host, Ken Frazier (3161), looks on.



FREE LANCE WRITER Jake Page (right) was at Sandia last week to research an article on inertial confinement fusion for SCIENCE '85. Here, he talks with Don Cook (1260) at the PBFA II site.

A Request an Hour

Media Keep Public Info Division Busy

Media interest in Sandia, propelled at a smart clip during the summer by the 40th anniversary of the first nuclear detonation and by "Star Wars" inquiries, remains at a healthy level this autumn.

Take a couple of for-instances. In recent weeks Pace VanDevender (1200) and Roger Hagengruber (300) reminded millions of CBS Evening News viewers of Sandia's contributions to pulsed power and verification technology, respectively. And at the technical end of the media spectrum, more than 100,000 specialists had the opportunity to read an *Electronics* magazine article on a method developed by Kyle White of IC Simulation and Modeling Division 2112 for measuring capacitance in VLSI chips.

The job of making sure that the media get the information they need for such coverage — and making sure that the information supplied is correct and unclassified — falls within the bailiwick of Public Information Division 3161 supervisor Nigel Hey and his three staff members, Phyllis Wilson (now on loan to the retirement-stricken LAB NEWS), Rod Geer, and Ken Frazier.

In September the division handled about 40 inquiries, visits, etc., from media ranging from *Science Digest* to *Electronics*, from *Aviation Week* to *Electronic Materials Report*. This month the division has already hosted on-the-spot visits from CBS, the Public Broadcasting System, the London *Daily Telegraph*, *Science 85*, *Science News Energy Daily/Defense Week*, and a writer who represents both *California* magazine and *Harpers*. Today's colloquium speaker, David Fishlock of the London *Financial Times*, also was on the lookout for story material.

Public Information continues to play an important role in the Labs' technology transfer effort. "In September, for example, we received and responded to 43 requests for information on T.A. Allen's [7484] work in electropulse chemical machining and an equal number on Kay Hays' [1831] work in plasma deposition of amorphous alloys," Nigel says. "These inquiries resulted from coverage stimulated by two of the approximately 50 technical press releases we produced in fiscal 1985."

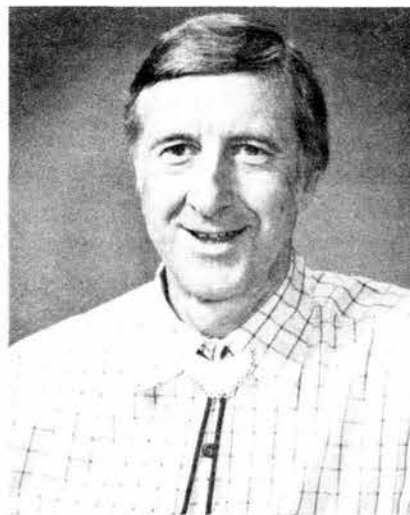
Last fiscal year Nigel's division handled 70 percent more media requests than in FY82. "We've seen a fairly consistent increase in media interest in the past few years," he says. "Press contacts were up 33 percent in FY83, by 13 percent in FY84, and by 22 percent in FY85.

"We average one request from the general public — including the media — every hour of the work day. Some of these might take only five minutes to answer, but others take days. When *Smithsonian* magazine commissioned writer Jake Page to do an article on Sandia's testing facilities, for instance, we had to map out a five-day schedule inside and outside the Albuquerque tech areas. These included conversations and briefings with 22 Sandians, including George Dacey."

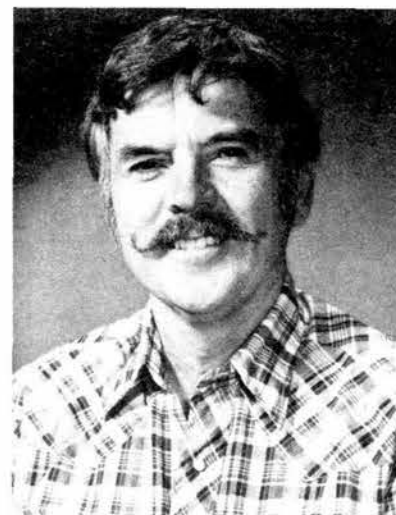
The 10-page *Smithsonian* article appeared in May 1985 with a colorful selection of Sandia photos, many of them from Photometrics or Field Test. Page returned last week to document Sandia's particle beam fusion work for *Science 85*.

Another writer, Frank Rose, made a similar visit for *Science Digest* in July, to research a story on the Sandia mission. This article will be featured in a special December 1985 issue on technical innovation, with a commissioned portfolio of photos illustrating Sandia's work in solar and wind energy. That issue also will feature the country's 100 "top innovators." Div. 3161 assisted in nominating 10 Sandia candidates for this competition — several of whom will be among the winners.

Retiring



Milton Zimmerman (5242) 29 yrs.



Fred Bauer (6427)

33 yrs.



Gordon Miller (7123)

37 yrs.



Rosalie Gallegos (3741)

36 yrs.



Ruth Wright (2122)

21 yrs.



Louis Gallegos (3436)

23 yrs.

Thirteen Spend Summer in Combustion, Computing

Among the many visiting researchers at the Combustion Research Facility this summer were seven graduate students and faculty members sponsored by Associated Western Universities (AWU). Another six college students worked with staff members and computers in Computation Department 8230.

The AWU program was organized by the Department of Energy to fund work experience at national laboratories for students and faculty in science and engineering. Sandia Livermore has participated in the program for the past six years, primarily in combustion research.

One of the AWU students who spent the summer at the combustion facility was Vonda Smith. She worked with Bob Perry (8353) on the plug flow reactor, using a sophisticated optical technique that involved interfacing with the reactor. She is a junior in chemical engineering at Jackson State.

Another summer visitor was Fred Dryer, a professor of mechanical and aerospace engineering at Princeton. He joined Bob Green (8362) in studies of low temperature chemistry, studies that should lead to a better understanding of engine knock.

Bob Scott came from Southern University-Baton Rouge, where he is a mechanical engineering professor, to work on a computer that predicts the combustion rate in the internal combustion engine. He collaborated with Peter Witze (8362) and Claus Borgnakke of the University of Michigan faculty.

Rich Axelbaum, a graduate student in mechanical engineering at UC Davis, remains part-time at Sandia through the end of the year. He's doing thesis research on soot formation in a counterflow diffusion flame with Bill Flower (8351).

A doctoral student in chemical engineering at Purdue, Bart Waters, worked in Reggie Mitchell's (8361) coal lab making size, temperature, and velocity measurements on coal chars and synthetic chars called Saran. His objective was to determine the overall burning rate of these materials.

Darren Pleasance, a mechanical engineering major at UC Santa Barbara now in his junior year, assisted Randy



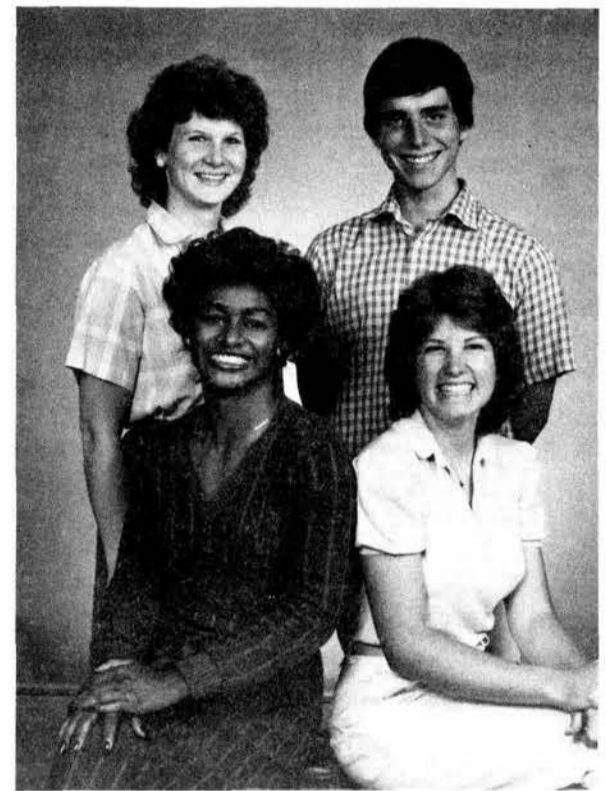
AWU SUMMER faculty and students at the Combustion Research Facility were (2nd from left) Darren Pleasance, Bob Scott, Jessica Turner (also in another photo), Fred Dryer, Sandia's AWU liaison Jim Smith (8024), Vonda Smith, Bart Waters, and Richard Axelbaum. Far left is Craig Taylor, an AWU student who spent the summer in the Computer Center.

Schmitt (8353) in the laser development lab. His work involved programming a computerized data acquisition system for the Diana laser. He also did some mechanical design work for the Nd:YAG laser injection system.

Jessica Turner, a graduate student at Jackson State, worked with Bob Whiteside (8233) in developing a computerized bulletin board. She is pursuing a PhD in computer science.

A Livermore student, Craig Taylor, now a senior in electrical engineering-power at Cal Poly San Louis Obispo, returned this summer to work with Mel Lagasca (8234) under AWU auspices. His work involved data communication in the technical control center of the computing facility.

Others who worked in the computing department over the summer but who are not affiliated with AWU were Phil Hay, Sandy Banyoczky, and Donna and Julie Edwards. Phil has completed his undergraduate degree in mathematics and computer science at the University of Illinois and will be working toward a PhD in math or computer science. This summer he helped Linda Petzold (8231) and Bob Arm-



COMPUTING CENTER summer employees were (back row, from left) Sandy Banyoczky and Phil Hay; (front row) Jessica Turner and Donna Edwards. Not pictured is Julie Edwards.

(Continued Next Page)



NEWLY ARRIVED Weapons Development Director Gene Ives (8100) managed to miss a dunking during the Oct. 1 LEAP Faire. But he joined in the spirit of the event by taking a pie in the face from every 8100 employee who pledged a Fair Share donation on Oct. 4. Here are two of the dozen people who took him up on

the offer. At left Carolyn Pura (8164) makes an arm's-length hit; Barry Schoeneman (8153) makes sure the pie doesn't miss the target. However, despite a head covered with whipped cream, Gene still managed a laugh at the end.

Continued from Previous Page

strong (8351) develop a propellant burning model and assisted Joe Grear (8231) in development of parallel processing linear algorithms for the ELXSI computer.

Sandy is a junior this fall at the University of the Pacific majoring in computer science. She assisted Tom Jefferson (8235) in maintaining documentation for Sandia's IBM systems. This was the second summer at Sandia for the Livermore native.

Donna returned to Sandia after working here during high school four years ago. She is now a senior at UC Davis in electrical and computer engineering. She worked with Joe Harris (8234) to develop data synchronization communications between Livermore and Albuquerque.

Donna's sister, Julie, graduated from Granada High School in Livermore and entered UC Davis this fall. She has been at Sandia under the Work Experience Program the past two years. This summer she assisted Roy Lee (8230) and Christine Yang (8231) in the testing and development of graphics packages, including writing and running programs on the Lasergraphics color hardcopy system.

Supervisory Appointment

DON PUTZ to supervisor of Tritium Technology Division 8443, effective October 1.

Don joined Sandia at Livermore in 1968 after four years with the Naval Ordnance Test Station at Pasadena. His Sandia assignments included mechanical engineering work on the W71 Spartan missile system, the B83 and W79 warhead programs, and, most recently, the gas transfer systems in weapons for the Component Development Division.

His education includes a bachelor's degree in mechanical engineering from San Francisco State and a master of science degree in the same field from the University of Southern California.

He and his wife, Jeanne, have two children and live in Manteca. Don's hobbies are backpacking and fishing.



SANDIA SOFTBALL CHAMPS for the 1985 season were these members of the Sandbaggers team. They took first in the Sandia Coed Softball League with a 12-2 record and won the end-of-season tournament. From left in front are Eldon Porter (8362), Paul and Gilbert Sandoval of Wells Fargo Guard Services; second row — Vic Ham (8361), Jerry Creager of Wells Fargo, and Bob Sandoval (8257); third row — Tim Marino (8257), Fred Perez (8257), and John Benaff (8257); back row — Vince Prantil (8241), Steve Halleck (8257), Kathy Mello (8024), and Ray Lopez (8257). Missing team members were John Dolce (8257), Adam Sandoval (8184), and Shawn Perez.



SANDIA LIVERMORE NEWS

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SANDIA NATIONAL LABORATORIES

OCTOBER 25, 1985



DIRECTOR of the DoD's Office of Strategic Defense, Lt. Gen. James Abrahamson, visited Sandia Livermore on Oct. 10 for discussions with VP Dick Claassen (8000) in center, and Rick Wayne (8400), Sandia's SDI coordinator, at left. The following day Abrahamson addressed a NATO group meeting in San Francisco.

Congratulations

Joan (8316) and Jim (8432) Woodard, a son, Mark James, Sept. 30.

Linda and Mike (8271) O'Connor, a daughter, Rebecca Ann, Oct. 11.

Vera (8242) and Peter Revelli, a daughter, Jennifer Renee, Oct. 15.

Darcy (8161) and Mike Roberts, a daughter, Tara Lee, Oct. 15.

Sympathy

To William Forbes (8176) on the death of his father in Auburn, Sept. 13.

To Don Gallagher (8262) on the death of his father in Manteca, Sept. 12.

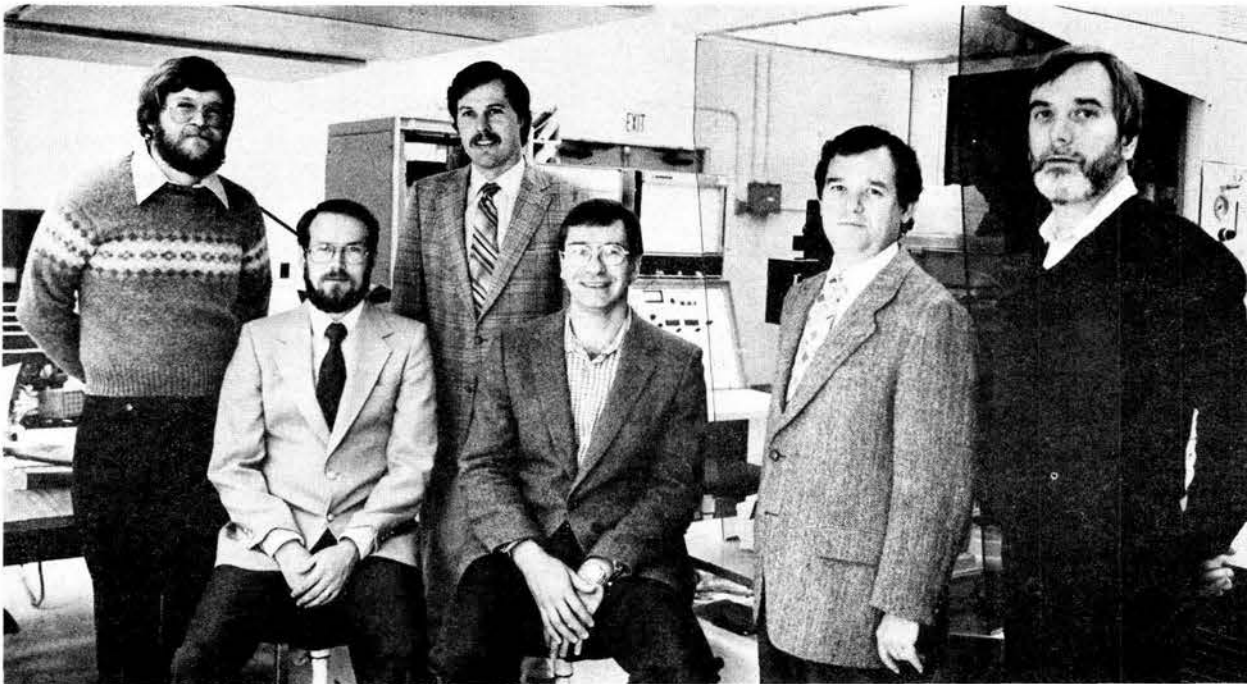
To Shannon Houk (8236) on the death of her grandfather in San Leandro, Sept. 8.

To Marge Mederios (8183) on the death of her mother in Pleasanton, Sept. 10.

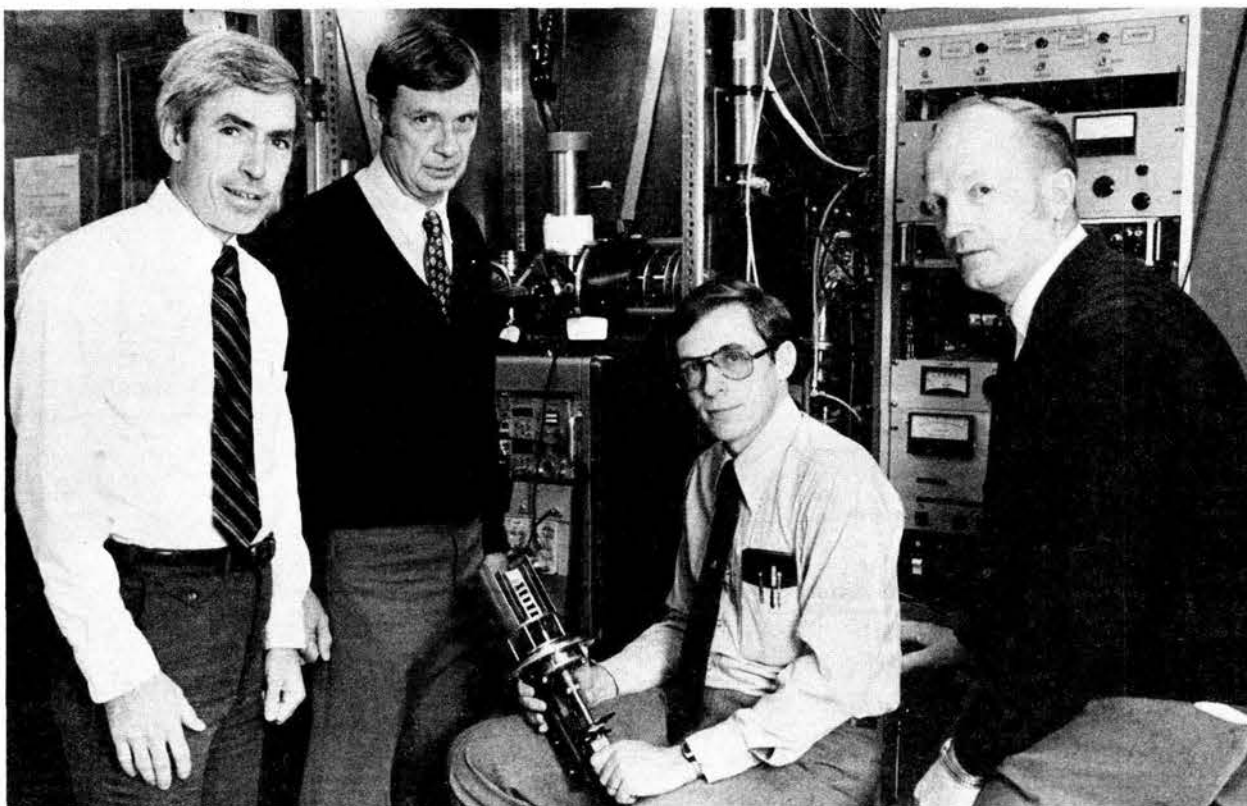
Materials Sciences Research Winners



DIRECTOR of the Division of Materials Sciences in DOE's Office of Basic Energy Sciences, Louis Ianniello (second from left), came to Sandia recently to present certificates to three groups of Sandians who, collectively, swept all three awards given in the Metallurgy and Ceramics category of this year's Materials Sciences Research Competition. Shown here with Fred Vook (1100, left), the winners in "Outstanding Scientific Accomplishment" were (from left) Terry Michalske (1845), Bruce Bunker (1846), and David Haaland (1823) for their project entitled "Stress Corrosion Cracking of Ceramics"; two other members of the group, George Fisk (8353) and former employee Mike Knotek, were not present for the photo.



WINNERS in "Sustained Outstanding Research" were (from left), Bob Biefeld (1154), Gordon Osbourn (1132), Paul Gourley (1132), Dave Myers (1141), Ralph Dawson (1141), and Ian Fritz (1132) for their work in strained-layer superlattices. Sandia projects have garnered at least one Materials Science Research award each year since the program began in 1982.



"AMORPHIZATION and Improved Friction and Wear of Steels by Implantation of Ti and C" was the title of the project that earned the "Significant Implication for Energy Technology" award for (from left) Tom Picraux (1111), David Follstaedt (1112), Jim Knapp (1111), and Larry Pope (1834).

Take Note

"Technology and Policy at the Boundaries" is the title of a Strategic Defense Initiative Conference set for Nov. 7-8 at the Classic Hotel. Sponsored by the Air Force Academy, UNM, NMSU, the University of Texas at El Paso, LANL, and Sandia, the conference is presented by Space Research Associates. Speakers include Sandian Gerry Yonas (now on loan as Chief Scientist for the SDI Office in Washington), Thomas Karas (Congressional Office of Technology Assessment), Senator Jeff Bingaman, and Pace VanDevender (director of Pulsed Power Sciences 1200). Registration is \$85. More info from Space Research Associates at 266-7156.

* * *

During the Balloon Fiesta, a team of Sandians arranged with Rolla Hinkle II, pilot of the NM Military Institute balloon, to visit several local schools and take the kids on tethered balloon flights. More than 130 students, 60 of them in special education, experienced the thrill of ballooning. Congrats to crew chief Carlos Quintana (1811), Mike Garcia (5268), John Dink (5245), Russ Mikawa (2155), Ken Gillen (1812), and Alan Sylwester (1811), who took the week off to tour the schools, and to several other Sandians who helped out for a day or two.

* * *

Children's author Jean Marzollo will conduct a mini-conference on writing for children (your own and others), getting published, selecting books to read to children, and other topics on Nov. 9 at the APS boardroom (525 Buena Vista SE) from 1:30 to 3:30 p.m. Register (\$10) by Nov. 1 with the YWCA. More info at 293-7400.

* * *

The Junior League's annual "Holiday Olé" Shopping Fair is set for Nov. 7-9 at the Convention Center. Preview party, 7-10 on Nov. 6, features the Watermelon Mountain Jug Band and a silent auction; tickets are \$20. The Fair is open from 10 a.m. to 8 p.m.; tickets are \$2 adults and \$1 children under 12. All proceeds go to the Ronald McDonald House, Community Foundation, Volunteer Albuquerque, Shelter for Victims of Domestic Violence, AMAZE, and LEAD. More info at 247-1800.

* * *

Retiree Andrea (Andy) Breckenridge recently lost her seven-year-old grandson to leukemia. During his last days he needed massive amounts of blood, and many Sandians (coordinated by Ilene Mathes, 153) donated blood in his name. Thanks to all of you from Andy and the rest of his family.

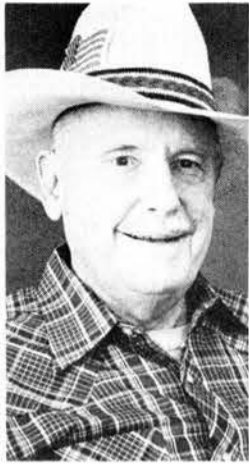
* * *

The Base Arts & Crafts Center is having a "Moonlight Madness Sale" on Saturday, Nov. 2, from 9 a.m. to 11 p.m. All items in the sales store, frame shop and ceramics shop will be on sale at 5-50% off the regular price.

* * *

Retiring this month and not shown in LAB NEWS photos are Alice Smith (3141), Gertrude Stephens (7260), Ruben Trujillo (7818), Milton Madsen (5214), Richard Jones (2601), Elmer White (3424), Gordon Cheek (7471), Vincent Cordova (7476), Roman Garcia (3741), Clayton Henderson (5254), Margaret Key (2634), Horace Lucero (1632), and Ernest Montoya (7612).

VE Day — A Pilgrimage to the Past



George Norris (ret.) made a 13,000-mile trip early this summer to observe the 40th anniversary of VE Day in Pilsen, Czechoslovakia. As a 28-year-old major, George was Operations Officer for the 16th Armored Division that helped liberate the city from German occupation in the summer of 1945.

"We had 16 mobile 105mm howitzers that had supported assaults on German positions throughout the European campaign from shortly after the landings on Normandy beaches until the German surrender," George says. "VE Day was a great celebration in 1945 with thousands of Czechs cheering the American troops. This summer, a subdued and shabby crowd of hundreds watched a Russian military parade. The Soviets have rewritten history — they now take all the credit for winning WWII."

George was disappointed that only one other American veteran returned for the observance.

"For me, it was not a happy occasion," George says. "My friend Bob Schreiberstein — the other American vet — and I talked with several Czechs, and their stories were sad. Pilsen is one of the more prosperous cities in Eastern Europe. It is the location of the giant Skoda Industrial complex that employs 55,000 workers manufacturing everything from autos to nuclear reactors. Still, the people of the city enjoy very little of the material things that we take for granted.

"One woman told us in English that she wished the Americans would return. 'Since the Russians have been here,' she said, 'it has been ____.' And she used some very explicit expletives. Another Czech that I talked with wrote me a letter recently. He said, 'The USA is the country of freedom that protects the peace in the world. If the USA did not exist, then nobody could stop the evil that exists today in the non-free world.'

"We can never realize what our freedom means until we see the lack of freedom in large parts of the world," George says.

George was also depressed because he had spent a day the previous week visiting the Luxembourg American Cemetery and Memorial where 5000 WWII American dead are buried, including General George Patton.

"There are several monuments and a small chapel commemorating the sacrifice of the Americans buried there," George says. "It is beautifully maintained. My feelings were mixed — pride, sorrow, bitterness, anger. What did it all mean?"

After VE Day in 1945, George's unit was pulled out of Czechoslovakia to regroup and transfer to the Pacific. George has no mixed feelings about the end of the war with Japan. "Harry Truman saved millions of lives with the decision to use atomic weapons on Hiroshima and Nagasaki," he says.



GEORGE NORRIS visits the grave of General George Patton in the Luxembourg American Cemetery.



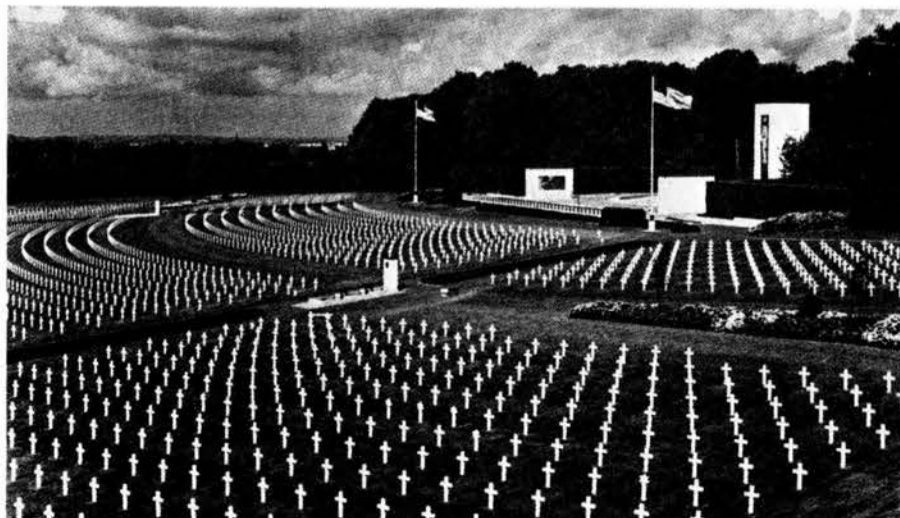
AMERICAN VETERANS Bob Schreiberstein and George Norris observe VE Day under a Russian banner in downtown Pilsen, Czechoslovakia. The Russians take credit for liberating the city in 1945.

After the war, George returned home in February 1946. He joined a Sandia weapons group staff in 1954, then transferred to Field Test. He retired in December 1981.

The best part of George's recent pilgrimage occurred before he left the United States. In April he was in Norman, Okla., to award the George R. Norris scholarships to two cadets in the ROTC program at the University of Oklahoma and another scholarship, the 16th Armored Division Award, to another ROTC cadet.

George graduated from the University of Oklahoma ROTC program as a second lieutenant in 1938.

"Some things you don't forget," he says.



MORE THAN 5000 Americans, casualties during WWII, are buried in the Luxembourg American Cemetery and Memorial.

Welcome

Albuquerque

Janet Iafonaro (3533)
James Lauffer (7544)
Mary Quintana (3427),
Vonna Witten (2644)
Walter Witkowski (2313)
Gary Bultmann (7811)

Arizona

Mark Retter (7261)

Arkansas

Dennis Miller (7265)

California

Phyllis Pei (3314)
Isaac Shokair (1271)

Colorado

Carl Swartz (7265)

Kansas

Gerhard Graham (3713)

Massachusetts

Ann Campbell (1831)

Minnesota

Michael McDonald (7484)

Nebraska

Brent Meyer (2336)

Nevada

Robert Wilson (7124)

New Mexico

Mary Madrid (3531)

Virginia

Stephen Billups (7233)

Two Recertified in Purchasing

Joe Kerr (3715) and Jim Giachino (3741) recently received their Certified Purchasing Manager (C.P.M.) recertification certificates from the Purchasing Management Association of New Mexico (PMANM). Both attained C.P.M. status in 1980 and have been recertified through 1990.

Requirements for the C.P.M. classification include passing an exam, gaining three to five years of purchasing or materials management experience, and accumulating a total of 70 C.P.M. "points," earned primarily through education. Recertification points are earned by seminar attendance, teaching, publishing, and participation in PMANM as an officer or committee chairperson.

Other C.P.M.s at Sandia are Dick Russell (3700), Katherine Danforth (3745), Lew Sisneros (3731), Anthony Sanchez (3715), Theresa Davis (3726), and Mary Nation (3745).

MILEPOSTS

LAB NEWS

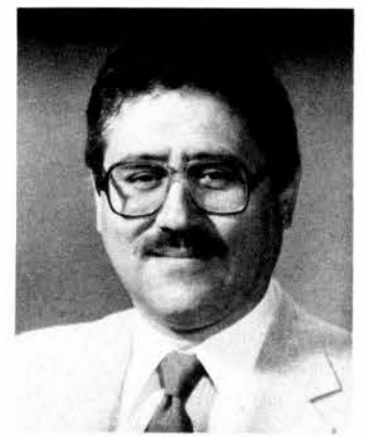
OCTOBER 1985



John Foster (7212) 35



Barbara Freeman (8264) 15



Jose Martinez (7833) 15



John Anaya (3741) 35



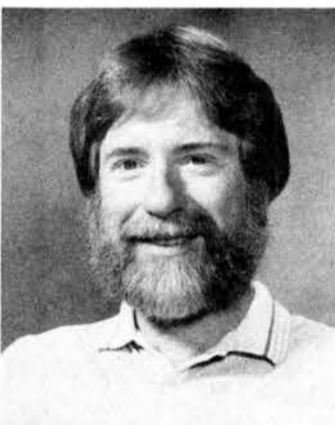
Pat O'Brion (8262) 10



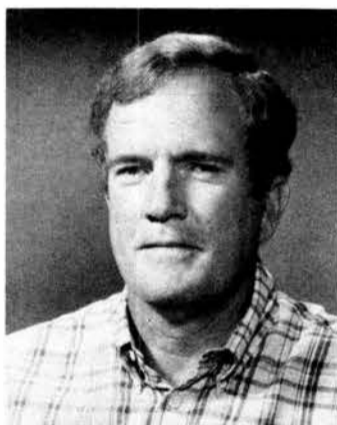
Steve Gonzales (7812) 15



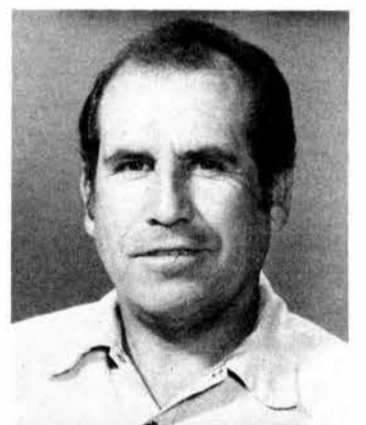
Terri Ripi (4041) 10



Larry Weirick (1841) 15



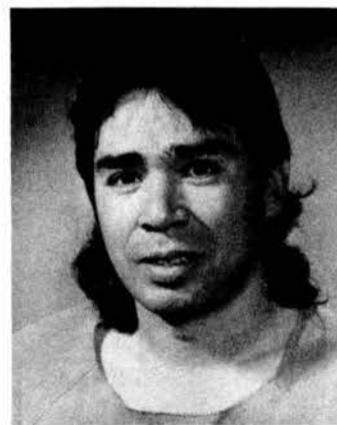
Charles Hickox (1513) 10



Felix Garcia (7818) 15



Deborah Linnell (8471) 10



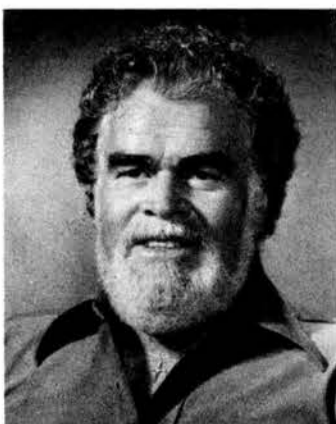
Robert Kaneshiro (7818) 10



Gene Angvick (8183) 20



Gene Theriot (2640) BTL 30



Abedon Ortiz (7818) 15



Sarah Yost (3461) 10



Don Davis (2148) 20

Estate Planning Follow-Up Oct. 29

Response to the Oct. 3 estate planning seminar was so strong that the same group has scheduled a similar seminar for Oct. 29 from 5 to 7 p.m. in the Coronado Club ballroom.

Again, the seminar will be objective and non-biased — no sales pitches for any specific investment plan. But this time there should be more time for exploring in-

vestment options in some depth and for answering questions from the audience. Meeting conditions will be improved too — a microphone, a blackboard, and more room to sit down.

Those who attended the Oct. 3 session are, of course, invited to the follow-up, but other employees, retirees, and spouses in-

terested in estate planning are also welcome to attend.

Running the seminar will be lawyer Doug Barr; recent retiree George Arnot, who's something of an expert on Sandia's retirement plans; accountant Scott Porter; and financial planner C. D. Bryan. No reservations are necessary.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.

Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per issue per category.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignments.
10. No commercial ads.
11. For active and retired Sandians and DOE employees only.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

- GLASS FIREPLACE DOORS, \$35; Volkswagen gasoline heater, \$35. Patterson, 299-1062.
- CHEV. 6-cylinder block, machined parts, complete overhaul kit, \$300; parting out 1958 Ford pickup (no engine). Marquez, 344-1462.
- DISCOUNTED MEMBERSHIP to "Enchanted Trails - Camp Coast-to-Coast Club"; information: PO Box 1747, Truth or Consequences, NM 87901. Carnohan, 894-7260.
- MINIBLIND, Delmar, 70 1/4" height (can be shortened), 47 1/4" width, paprika color, inside or outside mounting, never used, in original pkg., \$35. Scott, 296-4159.
- GOLF CLUBS, metal woods 1, 3, 5, Northwestern Judy Rankin, hardly used, \$125. Ford, 881-7953.
- TYPEWRITER, Smith-Corona manual, Sterling model with hard carrying case/dust cover, \$20. Barr, 821-5870.
- 2 LOBO BASKETBALL season tickets, SW Mezz. Sec. 20, Row 2, first come. Gallegos, 294-0233.
- DINING TABLE, drop leaf, solid oak, 4 chairs, green crushed velvet seats, 2 leaves, custom table pads, fruit-wood finish, \$925. Mueller, 821-6391.
- 1982 JAYCO FOLDOUT CAMPER, sleeps 6, stove, icebox, awning, \$2500. Shannon, 821-6017.
- CHANDELIER, wrought iron, \$50; wrought iron table bottom, \$45; porcelain fireplace, w/8" pipe, good for workshop, \$65. Garcia, 888-4735.
- TV, 12" B&W, RCA, with adjustable-height brass pole, good for corner, \$40. Rainhart, 821-3690.
- DINING TABLE w/chairs, Formica top, \$30; 4 shelves, 2x10s, 5' long, 6 decorative blocks, \$15. Rosinski, 294-1908.
- LARGE FREESTANDING FIREPLACE with 8 feet of porcelain-coated pipe, screen, grate, and cover, \$175. Marshall, 281-5821.
- 5-FT SLIDING DOOR, aluminum, both doors slide, w/screen, \$25 OBO. Trump, 299-5162.
- ELECTRIC ORGAN w/bench seat,

- walnut. Everett, 296-8786.
- FRENCH DOOR set, 6"x32" doors, make offer. Volk, 299-1702.
- DRESSER, 6' wide, Mediterranean dark wood, 6-drawer, with 1-door, 2-shelf closet in middle, \$100 w/mirror, \$75 wo/mirror. Hernandez, 268-5000.
- GOLF CLUBS, ladies starter set, \$40. Neugebauer, 294-1922 after 5.
- ELECTRIC GUITAR, Mako Traditional TB-1, 6-string, single pickup, solid body, candy apple red, brand new, \$175 OBO. Granfield, 268-1942.
- CARPET, 12"x27" approx., available Nov., \$200; 4 tires, H78-15, 2 snow, 2 regular; Daystrom black dropleaf table w/chairs, \$150. Murphy, 821-7785.
- PIANO BENCH w/hinged top and music space, \$35; watchmaker's and jeweler's supplies. Bazar, 898-1467.
- COLOR TV, Zenith 19", Chromacolor II, \$125 OBO. Jones, 822-1194.
- CHAIN SAW, McCulloch, 12-inch bar demonstrator model, wraparound guard, \$135. Shinn, 299-6238.
- ELECTRIC STOVE, Kelvinator, 4-burner, 30-inch, white, time-controlled oven, \$150 or trade for hay or grain. Lackey, 898-6638.
- CHAIR/BED, convertible, urethane, \$45. Moss, 296-4109.
- BEDROOM SET, kingsize mattress/box spring, headboard, frame, and large 9-drawer dresser w/large mirror, \$225. Lucero, 831-0125.
- 73 MAGAZINE, 1961-1971 partial, 1972-1977 complete, \$100 OBO. Hunter, 294-2877.
- BRASS FIREPLACE SCREEN w/andirons; two chainlink crates w/hardware; water main valve key. Collins, 292-0495.
- BOOKSHELF SPEAKERS, pair, Realistic Solo-4, oiled walnut cabinets, 16"H, 6"W, 8"D, 5"x7" element with whizzer cone, asking \$30. Schkade, 292-5126.
- FREE to good home with fenced yard, one-year-old spaniel cross, very friendly. Grube, 884-0853.
- SOFA/double hide-a-bed, earhtone colors, \$125. Drotning, 294-4807.
- FLOWERED LOVESEAT, \$50; green vinyl recliner, \$75; wedding dress, never used, \$125; US postage stamp machines; screen door. Street, 298-5784.
- SOFA, blue, approx. 7' long, needs recovering, reasonable, make offer. Lambert, 294-4188.
- 12-FT ALUMINUM BOAT, oars, seats, life vest, \$150; 3-HP Johnson motor, water-cooled, \$125, all for \$250. Anderson, 265-0403.
- ANTIQUUE BEDROOM SET, complete, \$300; antique china hutch, \$375; metal full-size filing cabinet, \$35; desk, \$25. Baca, 299-4875.
- BODY SHOP 360 rowing/multigym exerciser; Vitalizer rebound exerciser; ottoman, brown velvet; reasonable. Scheiber, 298-0904.
- MAPLE DINETTE TABLE, 42" round, opens to 52", Formica top, \$50. Montoya, 299-1779 after 5 weekdays.
- TRAILER, custom-made for hauling equipment, 4x7 with loading tracks, \$375. Zimmerman, 296-1058.
- GAS RANGE/clothes dryer; two electric brooms; 9'x12' area rugs; chandelier; two hanging lights. All best offer. Roan, 892-7299 after 7:30.
- ATARI 2600 game system, working condition; will also consider components and cartridges. Tarbell, 292-0141.
- SOFA, Early American, beige w/floral

- design and maple arms, \$200. Hall, 299-3594.
- ZENITH 25" color console TV, good picture, \$125. Dunlap, 884-0232.
- SEARS 10" RADIAL ARM SAW w/attachments, \$150; 60" heavy duty steel desk, \$100. Whalen, 822-0413.
- 25-GAL. PROPANE TANK, new and full, \$125; antique secretary. Miles, 1-832-6808.
- RIFLES, 03-A3 custom, \$200; 257 Roberts custom, \$425; 250-3000 Model 77 Ruger, \$375. Zamora, 836-6101 after 5.
- STORAGE SHED, 10'x12', new, wood frame, masonite siding, floor; will deliver and set up locally, \$900 (\$7.50/sq. ft.). Bruce, 897-7416.
- 40" GAS RANGE, \$50; microwave oven, \$75; 19" RCA color TV, \$125; queen mattresses and frame, \$75. Dionne, 262-0160.
- 9" B&W TV, \$45. Barnes, 881-6808.
- MOVING SALE, large refrigerator, small apt. refrigerator, weight bench, mt. bicycle (broken), garden tools, many more smaller items. Alsbrooks, 883-8114.
- TOASTER OVEN, \$15; hunting bow/arrows, \$25; 8 liqueur glasses, \$5; 6 cordial glasses, \$5. No checks. Hoff, 294-4835.
- COUCH and chair, velvet, medium lime green, \$295; new 30" Kenmore white gas range, \$300; other furniture. Sanchez, 298-4803.
- WHITE PICKET FENCE, 4' high, mostly 9' sections, ready to mount on posts, 130 ft. for \$100. Runyan, 255-6719.
- KENMORE UPRIGHT FREEZER, 15 cu. ft., \$275. Harris, 299-4559.
- FOLDING shop table legs, \$15; tool cart, \$45; auto creeper, \$7; truck rails, \$20; portable ironing board, \$5. Weems, 281-5837.
- TI PROFESSIONAL COMPUTER, two floppy disk drives, monochrome monitor, printer, 128K memory, MS-DOS. Koterak, 281-1631.
- WATERBED, king-size, used 3 months, trade for excellent oversized single waterbed or \$225 for everything. Orth, 292-6174 after 5.
- UTILITY TRAILER, 5' x 8', 3' sides and tailgate, 3500-lb. load capacity, 2" ball coupler, spare tire and wheel, \$500. Hughes, 299-6674.
- BASSETT CRIB/mattress, \$75; playpen, \$15; other items: car seats, training potty, etc. Roesch, 296-8248.
- MOVING SALE, couch, end tables, dinette set, freezer, table saw, knitting machine and attachments, bedroom set, much more. Chaves, 255-6155.
- DESK LAMP, clamp-on, w/fluorescent lights, \$25; infrared food warmer/defroster, \$10; Singer buttonholer, \$15; jungle gym, \$10. Lieberman, 299-7739.
- DISK DRIVE MSD Super for Commodore 64, \$100. Bailey, 268-8079.
- LADIES small sapphire and diamond ring, \$200 OBO; two 2x3 horse tanks, \$25; western saddle, \$300. Harley, 898-6035.
- SCHWINN AIRDYNE EXERCYCLE, top line, upper/lower body, built-in fan, all options, paid \$550, sell \$350. Schneeberger, 298-5955.
- 57 CHEV. 4-dr., 6-cyl., \$3000 OBO; Honda 90cc dirt bike, needs work, \$50. Pierce, 299-2801.
- 77 CHEV. Monza, 4-cyl., 4-spd., one owner, \$1200. Jercinovic, 892-7458.

TRANSPORTATION

- '65 CHEVELLE Malibu SS Coupe, one owner, 327, 4-spd., positraction, AC, AM/FM, tilt, \$3950. Schkade, 292-5126.
- '79 HARLEY DAVIDSON Sportster XLH. Ramirez, 881-0128.
- '71 FIREBIRD, 350, V-8, AT, AC, PS, PB, new Midas muffler, one owner, 70K miles, \$1795. Shinn, 299-6238.
- RV CHEV. Van, self-contained, raised top, \$13,000. Kresge, 821-3933.
- '83 TOYOTA PICKUP w/camper shell, AM/FM radio, heater, 5-spd., \$5700. Sample, 865-4771.
- '79 HONDA ACCORD LX, new Michelin XZX radials, new brakes and clutch, 84K miles, asking \$2950 OBO. Bland, 265-6286.
- NOTE: If your ad submission made the Friday noon deadline but was not printed, it's probably because it wasn't on 8 1/2 x 11-inch paper. Please resubmit on full-sized paper. LAB NEWS.
- '66 MUSTANG, runs good, asking \$1800. Lovato, 344-6543.
- '74 YAMAHA 360 Enduro, \$500 OBO; '72 Yamaha 125 Enduro w/electric start, \$130 OBO. Garcia, 268-3848 after 5.
- '77 PORSCHE 911S Targa, \$14,500. Shane, 294-4920.
- '67 MGB-GT, white, 4-spd., 4-cyl., w/dual carbs, wire rims, radial tires, \$2575 OBO. Nelson, 265-7482.
- '65 MERCEDES 220, 4-dr., 6-cyl., original owner. Leave name and number on recorder. Horton, 883-7504.
- '82 KAWASAKI 550 LTD, blue, extras, low miles, \$1095; '68 BSA, 441cc, single, \$425. Trennel, 294-8984.
- '75 PONTIAC convertible, runs, needs body work and new top, 40K miles on rebuilt engine, \$1200. Hente, 293-1546.
- '70 JEEP, MAIL SERVICE, right-hand drive, new carburetor, regulator, brakes and tires, rebuilt engine. \$1500. Tippy, 881-3397.
- '78 DATSUN 510 WAGON, 4-spd., AM/FM, 84K miles, \$2000. Beauheim, 822-0553.
- '74 VOLVO 4-dr., looks and runs good, \$1500. Stromberg, 255-6131.
- '70 DATSUN 510 WAGON, body needs work but dependable, \$575 OBO. Arguello, 266-3522.
- '81 FORD PICKUP F-100, 4-spd., manual, new brakes and steering box, \$3500. Hoban, 255-4644.
- '72 WINNEBAGO 18' Brave, 16K miles, sleeps 4, dual tanks/hitches, auto air. Carlyon, 299-2318.
- '82 SCIRROCO, AC, AM/FM tape, 4-speaker stereo, 5-spd., overdrive, 39K miles, silver-blue, \$6200. Kelly, 281-9774.
- '74 FORD F350 Super Camper Special, 55K miles + 9 1/2' Mobile Traveler camper, \$6000, firm. Baca, 296-8474.
- '84 COUGAR XR7, turbo, loaded, 26K miles, white ext., gray int. Forrest, 293-1641.
- '70 MERCURY Monterrey, 2-dr., 91K miles, AC, PS, PB, AT, \$800 OBO. Rospopo, 299-4601.
- '71 VOLVO P1800E, runs nicely, body has some damage, interior fair, new fenders, \$3400 OBO. Anderson, 881-0934.
- '84 NOMAD Travel Trailer, 24-ft., bunkhouse, self-contained, \$7800. Hastings, 881-6789.
- '73 PORSCHE 914, 2.0 liter, low mileage on rebuilt engine, new fuel injection system, yellow. DiMarzio, 881-9231.
- '70 MOTOR HOME, Champion, \$6000

- firm. Hill, 294-7534 or 883-3712.
- '82 MAZDA 626, 4-dr., 5-spd., AC, PS, AM/FM stereo, cruise, original owner, maintenance records, \$4950 negotiable. Turpin, 281-5933.
- '72 PLYMOUTH Stn. Wgn., 318, V8, AC, AT, PS, PB, new tires, original owner, \$800. Wolf, 294-7197.
- '80 VW RABBIT, diesel, 4-dr., 5-spd., AC, AM/FM, 40-50 mpg. Richards, 281-9471.
- '80 OLDS Cutlass Supreme Coupe, low mileage, AC, PS, PB, AM/FM cassette player, cruise control. Macallister, 821-1659.
- '69 VW Baja, new wide tires, rebuilt engine and transmission, \$1200 OBO. Marquez, 836-7115.
- '78 PONTIAC Bonneville, V8, 4-dr., AC, AT, PS, PB, cruise, AM/FM stereo, power door locks, original owner, 63K miles, \$2750. Orrell, 821-8742.
- TENT TRAILER, Westernfield, sleeps 4, spare tire, \$200; boy's Schwinn Speedster bike, 24", 3-spd., \$50; Ford hitch, \$10. Lieberman, 299-7739.
- '82 BMW R-100-T, custom paint, bags, fairing, extras, 17K miles, \$3500. Bailey, 268-8079 after 6.
- '71 VW POPTOP CAMPER, original owner, AM/FM, Semperit radials, plus VW tent and custom zip-up canvas luggage carrier. Mills, 299-2130.
- '79 HONDA street/dirt bike, XL500S, 5770 miles, new rear tire, \$750. Kuzio, 299-4193.
- SAILBOAT, 22-ft., Catalina, galley, head, lights, 5 berths, outboard, trailer, \$6500. Horton, 883-7504.

REAL ESTATE

- HATCH, NM, 2-bdr. house on one acre, recently redone, free and clear title. Miles, 1-832-6808.
- SPLIT LEVEL, 2150 sq. ft., 4-bdr., 2 1/2 bath, 9 1/4% loan, Chelwood and Indian School. Glenn, 293-9671.
- TOWNHOUSE, North Valley, 3-bdr., 1 1/2 bath, covered patio, range, dishwasher, refrigerator, 1200 sq. ft., \$49,500. Weaver, 296-0992.
- NE, 4-bdr. and study, 2210 sq. ft., LR, DR, FR w/FP, 2-car garage, near Candelaria and Chelwood. Drotning, 294-4807.
- NORTH ALBUQ. ACRES, one acre, water, electricity, view, asking \$39K cash or negotiate offer. De la Plain, 292-7637 evenings.
- MARLETTE MOBILE HOME, 14x70, 3-bdr., 1 1/2 baths, covered porch/carport, in adult park near Base. Felsen, 296-1138.

WANTED

- WHEELCHAIR, collapsible, "Companion," in good condition, rent or purchase. Hitchcock, 294-4591.
- BABYSITTER, full-time for 2-month-old girl, Base area preferable but not necessary. Lambert, 294-4188 after 5:30.
- OBOIST to complete classical woodwind quintet. Nichols, 298-4657.
- TELESCOPE for amateur astronomer and strong permanent magnets for science fair project. Smathers, 298-0613.
- CHILD CARE in my home, Monday through Friday, 12 months and older, Lomas and Chelwood area. Lesperance, 298-5203.
- GOOD HOME with large yard for 2-year-old Great Pyrenees, male, very gentle but good watchdog. Hasenkamp, 255-8946.

Coronado Club Activities

Kids' Halloween Party Sunday

BRING THE KIDS on out in their costumes to the all-new Halloween Carnival this Sunday night, starting at 5:30 p.m. The "Hall of Horrors" will feature Dr. Frankenstein and his cronies, the Mummy, the Mad Butcher, and other sordid characters. Games, prizes, goodies, movies, and all kinds of excitement for the young ones. Admission \$1 per child, which includes games, a soft drink, popcorn, a trip through the infamous "Hall," and a special treat. For you big kids that are just dying for a visit with the Mummy and Dr. Frankenstein, a 50¢ ticket will do the trick.

TONIGHT you have your choice of prime rib or salmon steak, two dinners for \$12.95, on the two-for-one special. Dance to the country-western music of the Isleta Poor Boys afterwards. They'll return next Friday night, Nov. 1, when your choice on the two-for-one dinner menu will be filet mignon or fried shrimp. Also, bring out your two left feet and take advantage of the C-W dance lessons that night.

THE THUNDERBIRDS retiree group's dinner dance tomorrow night Oct. 26, will feature the Lamplighters on the bandstand. Cocktails start at 5, buffet (prime rib, baked halibut, and all the trimmings) served from 6-8 for \$5.95. Come on out and see all your old friends! Reservations required; call the Club office now.

SINGLES — Don't forget the Halloween mingle on Thursday, Oct. 31, from 5-10 p.m. A costume wins you a free drink ticket, and Dunn's Dancing Machine will make the happy music.

VARIETY NIGHT on Saturday, Nov. 2, will feature the original "Wizard of Oz," uncut and in glorious color on the C-Club's own movie screen. Come on out — it's the last gala party-family night for 1985. The action starts at 5 p.m. with another low-cost, high-quality dinner buffet. Cartoons on the big-screen TV during the dinner hour, until 6 when Judy Garland and her friends will take over. You can't afford to miss the super door prizes offered at this one — everything from free Friday night dinners to free VCR rentals.

RETIREES, get in a gaming mood and come out to the Club on Monday, Nov. 4, to play all kinds of friendly card games. It all happens in the Eldorado Room, from 10:30 a.m. - 3 p.m.

SPEAKING OF retirees, The Thunderbirds group is looking for a volunteer willing to serve as secretary of the organization. If you're able to help, call Charlie Kaspar, 821-5521, or Nick DeLollis, 299-5384.

TRAVEL — The Dallas Adventure/Cowboy Football trip Nov. 27-Dec.1 is



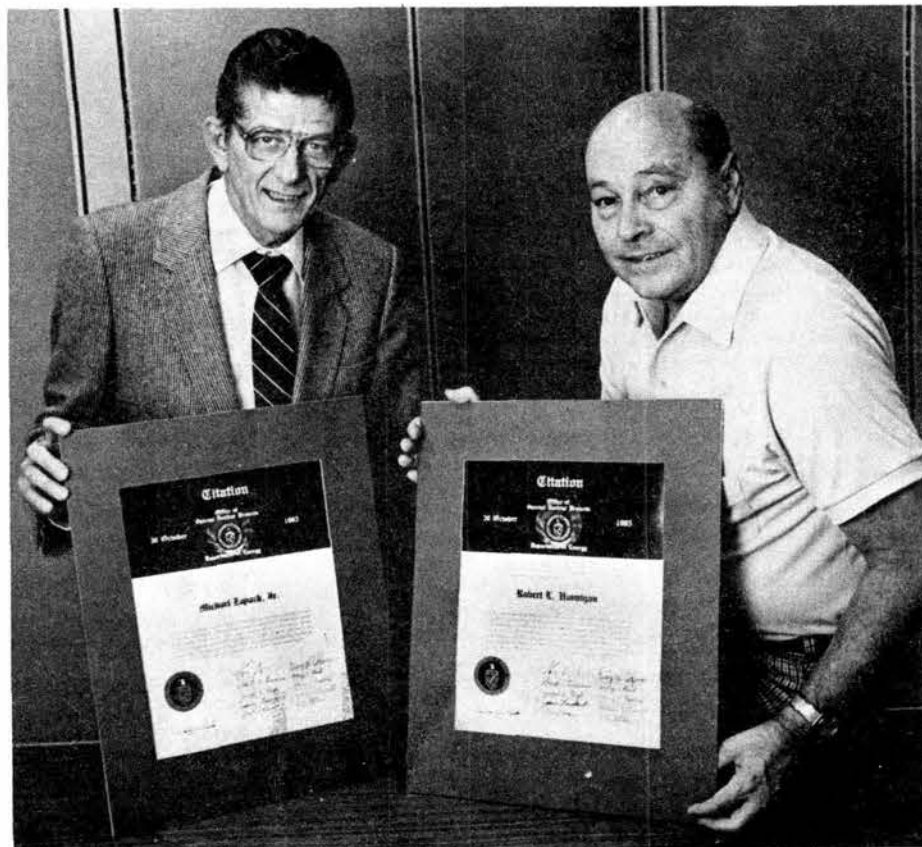
CLOWNING AROUND is Adam Sanchez, son of Phyllis Padilla (3521). Adam is all set for the big Halloween Carnival Sunday night at the Coronado Club, including the costume parade with prizes for the best clowns, witches, or what-have-you.

still open, but hurry — the trip is limited to 40 folks. It's \$248/person (\$188 for kids 12 and under), with a \$50 deposit due now. Price includes tickets to the Cowboys-Cardinals game, Thanksgiving dinner, Six Flags admission, city tour, etc.

Windsurf in San Diego Nov. 15-17. Price of \$249 buys you airfare, two days of surfboard rental plus an hour plus an hour of instruction, two nights at Dana Inn and Marina, and more. Info from Stan Ford, 4-8486.

THE C-CLUB JUNIOR Bowling League is looking for new members. The group goes for the strikes at Holiday Bowl on Saturday mornings at 9 a.m. If you're interested, contact Ciss Kelly at 255-8011.

ANOTHER BARGAIN for C-Club members. Once again, a Commonwealth Theatres coupon book good for free movie admissions, two-for-one specials, discounts on Coke, popcorn, etc., is available for \$5 at the Club office. It's valued at \$40 retail, so hurry on by and take advantage of the savings.



MIKE ZAPACH (left) and Bob Hannigan (both 7251) recently received award plaques from DOE's Office of Special Nuclear Projects for their contributions to the U.S. space and terrestrial isotope power systems program over a 10-year period. The plaques cite them for their roles "in quality, process inspection, assembly, and acceptance testing activities."

Events Calendar

- Oct. 25-Nov. 10 — "Frankenstein," Tues.-Fri., 8 p.m.; Sat., 6 and 9 p.m.; Sun. matinee, 2 p.m.; Albuquerque Little Theatre, 242-4750.
- Oct. 26 — Federico Jimenez Villafane, classical guitarist, 8 p.m., KiMo.
- Oct. 27 — Her Majesty's Marines and the Argyll & Sutherland Highlanders (bagpipes, drums, kilts and gilt), 7 p.m., Civic Auditorium, 766-7816.
- Oct. 27 — Movietime at the KiMo — Love to Laugh Series: "To Be or Not to Be," American (1935), Jack Benny and Carole Lombard, 7 p.m., KiMo.
- Oct. 28 — Travel & Adventure Series, "Alaska: Our Northern Star," 7:30 p.m., Popejoy Hall.
- Nov. 1 — The Ramblers, bluegrass and original folk music, 8 p.m., KiMo, 766-7404.
- Nov. 1-24 — "Night of the Bull Moose Visitation," 8 p.m. Fri.-Sat., 6 p.m. Sun., Vortex Theatre, 247-8600.
- Nov. 2-3 — Camino Real Cat Fanciers Show, Opera & Flower Bldg., State Fairgrounds.
- Nov. 2-3 — Grand Reopening of South Broadway Cultural Center, 1025 Broadway SE; Los Bohemios, Las Amigas, Linda Cotton and Street Life, break dancers, blues band; free admission, 766-7714.
- Nov. 3 — Movietime at the KiMo — Boy Meets Girl Series: "Lolita," American (1962); James Mason, Shelly Winters, Sue Lyon, Peter Sellers; 7 p.m., KiMo.
- Nov. 6 — Lucinda Childs Dance Company, choreographer and dancer for "Einstein on the Beach," 8 p.m., KiMo, 766-7816.
- Nov. 7 — Pianist Michael Caldwell, classical concert, 8 p.m., KiMo, 766-7816.
- Nov. 7-10 — Indian National Finals Rodeo, State Fairgrounds.
- Nov. 8 — Tsiganka, Russian emigre troupe; cossack dances, balalaika and gypsy songs; 8 p.m., KiMo, 766-7816.
- Nov. 8-9 — New Mexico Symphony concert (Mozart, Britten, and Brahms), Neal Stulberg, conductor; Stanley Cornett, tenor; David Jolley, horn; 8:15 p.m., Popejoy Hall, 842-8565.